



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/945,171	08/30/2001	Howard J. Smith	920476-904953	3257
23644 7590 01/29/2007 BARNES & THORNBURG LLP P.O. BOX 2786 CHICAGO, IL 60690-2786			EXAMINER FILE, ERIN M	
			ART UNIT 2611	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/29/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/945,171

Applicant(s)

SMITH ET AL.

Examiner

Erin M. File

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(b) because they are incomplete. 37 CFR 1.83(b) reads as follows:

When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Art Unit: 2611

2. The drawings are incomplete as the method of claims 11-12 are not illustrated in the drawings.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4, 5, 7, 11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iga (U.S. Patent No. 6,014,058) in view of Bar David (U.S. Pub. No. 2001/0054931).

Claims 1, 7, 11, 13, 14, Iga discloses switch means (fig. 1, 5) which alternately couples a first and second detector means (fig. 1, 2, 4) to the input and output of said amplifier (fig. 1, 1), the amplifier output being normalised to the amplifier input signal level and time aligned, difference means arranged to determine an error value corresponding to the difference between said amplifier input and output; digital signal processing means arranged to determine said error values as a function of said amplifier input signal level. Iga fails to disclose normalizing the amplifier output and time aligning the output and further processing means to determine error values as a function of the amplifier input signal level, however, Bar-David discloses a normalizing amplifier output to input level ([0015], lines 1-4) and time aligning (time aligning in the specification of the instant

Art Unit: 2611

application is achieved through phase compensation, Bar-David discloses compensating circuitry to eliminate phase difference in amplification circuitry, [0076], lines 4–9) and processing means to determine error values as a function of amplifier input signal level ([0015], lines 4-9). As Bar-David discloses that his method of normalizing an amplifier input and output improves the efficiency and dynamic range of an amplifier (abstract, lines 1-3), it would have been obvious to one skilled in the art at the time of invention to incorporate the normalizing amplifier as disclosed by Bar-David into the invention of Iga.

Claim 4, Bar-David discloses detecting output coupled to digital signal processing means and the difference means is implemented by the digital signal processing means ([0076], lines 4–9).

Claim 5, Bar-David further discloses phase detection comprises a switch matrix having a $\pi/2$ hybrid coupler between the detector and amplifier such that said error represents phase error ([0076]).

3. Claims 2, 3, 6, 8, 10, 12, are rejected under 35 U.S.C. 103(a) as being unpatentable over Iga (U.S. Patent No. 6,014,058) in view of Bar-David (U.S. Pub. No. 2001/0054931) as applied to claim 1 above, and further in view of Shimamori (U.S. Patent No. 6,177,786).

Claim 2, although neither Iga nor Bar-David disclose the difference means is a difference amplifier coupled to the outputs of said detectors, Shimamori discloses difference amplifiers (fig. 1, 522). Because a difference amplifier is a low cost and

Art Unit: 2611

easily available component for implementing difference means, it would have been obvious to one skilled in the art at the time of invention to incorporate the differential amplifier as disclosed by Shimamori into the combined invention of Iga and Bar-David.

Claim 3, Bar-David further discloses an offset voltage applied to output of one of said detectors [0073]).

Claim 6, neither Iga nor Bar-David disclose a digital signal processing means averages said error values over a predetermined period for each amplifier input signal level, however, Shimamori discloses a digital error value averaged by the correction unit (col. 3, lines 26-29). Because Shimamori discloses this averaging process reduces the error of the output (col. 3, line 29), it would have been obvious to one skill in the art at the time of invention to incorporate the error averaging as disclosed by Shimamori into the combined invention of Iga and Bar-David.

Claims 8, 12, neither Iga nor Bar-David disclose the predistorter averages the error vales for each amplifier input signal level, however, Shimamori discloses a digital error value averaged by the correction unit (col. 3, lines 26-29).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2611

6. Claims 1, 7, 9, 13, 14 recite a separate difference means and digital signal processing means, however, claim 4, which is dependent on Claim 1 recites the difference means is implemented by the digital processing means. This is unclear and therefore indefinite.

7. Claims 2, 3 recite the limitation "said detectors" in line 2. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 4 recites the limitation "each detector" in line 1. There is insufficient antecedent basis for this limitation in the claim.

9. Claims 1, 9, 13, 14 recite the limitation "said error" in lines 7, 9, 9, 9. There is insufficient antecedent basis for this limitation in the claim.

10. Claims 1, 7, 9, 14, call for a comparator in which the amplifier output is normalized to the amplifier input and time aligned, however, as shown in figure 1 and as described in the specification, the normalization and time alignment occurs outside of the comparator system 100.

Allowable Subject Matter

11. Claims 9 and 10 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is (571)272-6040. The examiner can normally be reached on M-F 1:00PM-9:30PM.

Art Unit: 2611


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on (571)272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erin M. File



1/19/2007


DAVID C. PAYNE
PRIMARY PATENT EXAMINER